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Via Electronic Mail
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RE: Southern Environmental Law Center Early Scoping Comments on Wilmington Harbor 403, NC Navigation Project

Dear Mr. Walters and Ms. Hill:

The Southern Environmental Law Center ("SELC") submits these comments on behalf of Audubon North Carolina, Cape Fear River Watch, Center for Biological Diversity, CleanAIRE NC, North Carolina Coastal Federation, North Carolina NAACP, and North Carolina Sierra Club, regarding the U.S. Army Corps of Engineers' ("Corps") Notice of Early Scoping for the Wilmington Harbor 403 Letter Report and Draft Environmental Impact Statement ("EIS").[1] Because many of the concerns raised in our original scoping comments for this project are as true today as they were in 2019, we attach and incorporate by reference the comments submitted by SELC and other groups during the Corps' original scoping period.[2]

The Lower Cape Fear River is an ecologically significant and biodiverse river system. It features estuarine, brackish and freshwater ecosystems, supporting the fragile interface between freshwater and saltwater communities. When healthy, the lower portions of the River support thriving fish populations and provide important habitat to threatened and endangered wildlife including Atlantic sturgeon, red knots, and multiple species of sea turtles. Not far upstream, the River provides drinking water to more than 500,000 people throughout Wilmington and surrounding counties. Without question, the Cape Fear River is a critical resource to communities and wildlife across Southeastern North Carolina.

The River, and Wilmington, are at a crossroads. Increased sea level rise, salinity, wetland loss, toxic pollution, industrial development, and dredging are just some of the threats facing the river today. Against this backdrop, the North Carolina State Ports Authority has proposed

[1] U.S. Army Corps of Eng'rs, Notice of Early Scoping Public Comment Period (May 30, 2023) [hereinafter "Early Scoping Public Notice"].
[2] Letter from Sierra B. Weaver, at al., S. Env't L. Ctr., to Elden Gatwood, U.S. Army Corps of Eng'rs (Oct. 11, 2019), Attachment 1 [hereinafter "SELC, 2019 Scoping Comments"].

deepening and widening Wilmington Harbor, which will likely exacerbate each of these harms, compounding already existing threats to water quality, wildlife, and communities in Wilmington.

The current early scoping period serves as an opportunity for the Corps to step back and transparently evaluate the actual need for, impacts of, and alternatives to the proposed expansion. In its analysis, the Corps should prioritize studying meaningful alternatives to the proposed expansion—including non-deepening alternatives. In addition, the Corps must prioritize evaluating the latest sea level rise projections and the likely consequences associated with the expected influx of water, and the agency must incorporate these sea level rise expectations as a baseline assumption throughout its entire review.

I. History of the Proposed Expansion of Wilmington Harbor.

More than four years ago, the North Carolina State Ports Authority began promoting plans to deepen and widen Wilmington Harbor. In 2018, the Water Resources Development Act ("WRDA") was amended to expand the role of private, nonfederal entities to prepare the feasibility report required by Section 203 of WRDA and submit that report to the Corps.[3] In June 2019, the Ports Authority prepared a feasibility study and draft environmental report pursuant to Section 203 proposing to expand Wilmington Harbor.[4] The Corps responded with significant concerns about the initial 203 Feasibility Report, related to plan formulation, project economics, sea level rise, and compliance with the National Environmental Policy Act ("NEPA").[5] As a result, the Corps instructed the Ports Authority to revise its analysis to address the agency's concerns.[6] In September 2019, the Corps initiated a simultaneous but separate NEPA review by announcing its intent to prepare a Draft EIS for this project.[7]

In late February 2020, the Ports Authority submitted a revised 203 Feasibility Report to the Corps,[8] and in May 2020, the Corps again responded with significant concerns.[9] The Corps noted continued deficiencies in the treatment of sea level rise, real estate, and economics, and indicated that many assumptions in the Ports Authority's study were not adequately justified. While the Corps ultimately found the proposal "technically sound and feasible," it concluded that "unresolved issues contained within [the] Review Assessment will need to be addressed prior to construction."[10]

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[3] Pub. L. 115-270 § 1152 (Oct. 23, 2018).
[4] N.C. Ports, Wilmington Harbor, North Carolina Navigation Improvement Project Integrated Section 203 Study & Environmental Report (June 2019).
[5] U.S. Army Corps of Eng'rs, Wilmington Harbor Navigation Improvement Project Section 203 Feasibility Study / Environmental Report, dated June 2019: Policy Review Assessment (July 2019).
[6] *Id.* (stating "the report would need significant revisions before it would be considered to be legally and policy sufficient").
[7] Notice of Intent to Prepare a Draft Environmental Impact Statement (DEIS) for the Wilmington Harbor Navigation Improvement Project Integrated Feasibility Study and Environmental Report, New Hanover and Brunswick Counties, NC, 84 Fed. Reg. 48131 (Sept. 12, 2019).
[8] *See* N.C. Ports, Wilmington Harbor, North Carolina Navigation Improvement Project Integrated Section 203 Study & Environmental Report (Feb. 2020) [hereinafter "203 Feasibility Report"].
[9] U.S. Army Corps of Eng'rs, Review Assessment of Wilmington Harbor, North Carolina Navigation Improvement Project Integrated Section 203 Study & Environmental Report (May 2020) [hereinafter "2020 Review Assessment"].
[10] *Id.* at 4.

In December of 2020, the Water Resources Development Act of 2020 ("WRDA 2020") was signed into law, authorizing a series of projects, including the Wilmington Harbor Navigational Improvement Project.[11] The authorization of the Wilmington Harbor expansion was made subject to the resolution of the deficiencies the Corps identified with the 203 Feasibility Report, including the requirement to complete the NEPA review for the project.[12]

On March 10, 2023, the Corps formally withdrew its 2019 scoping notice, explaining "the Section 403 authorization" under WRDA 2020 "is conditioned upon the resolution of comments from the review assessment of the ASA(CW)" from May 2020.[13] The Corps further explained that the agency "will be initiating a separate environmental review process for the Federal action related to the conditional authorization under Section 403 of WRDA of 2020."[14] On May 30, the Corps announced the instant "early scoping" public comment period, explaining "[t]his evaluation is being conducted in response to the comments from the ASA(CW) review."[15]

II. The Corps Must Assess the Purported Purpose and Needs of the Proposed Expansion to Inform a Complete Alternatives Analysis.

Under NEPA, the Corps must prepare an EIS for any "major Federal action[s] significantly affecting the quality of the human environment."[16] The fundamental purpose of an EIS is to force the agency to take a "hard look" at a particular action—at the agency's need for it, at the environmental consequences it would have, and alternatives to the proposed action—before the decision to proceed is made.[17] The EIS must include a "reasonable range of alternatives" that would "meet the purpose and need of the proposal."[18]

The Corps states the purpose and need for the project is "addressing transportation inefficiencies for the forecasted vessel fleet" including "reducing costs to transport import and export cargo through Wilmington Harbor," and "addressing constraints that induce navigation-related operating practices that contribute to delays."[19] These statements are largely in line with the Ports Authority's previously-stated project objectives in the revised 203 Feasibility Report.[20] The purpose and need statements, however, are not accompanied by any evidence that such transportation inefficiencies are happening or will happen. Now is the time for the Corps to carefully analyze the assumptions underpinning these statements of alleged need before committing itself to a costly, environmentally damaging, and potentially unnecessary project.

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[11] P. L. 116-260 § 403(a)(5) (Dec. 27, 2020).
[12] *Id.* § 403(b).
[13] Withdrawal of Notice of Intent to Prepare a Draft Environmental Impact Statement, 88 Fed. Reg. 14993 (Mar. 20, 2023).
[14] *Id.*
[15] Early Scoping Public Notice, *supra* note 1.
[16] 42 U.S.C. § 4332(2)(C).
[17] *See id.*; *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983); *see also* 40 C.F.R. §§ 1502.13, 1502.14, 1502.15, 1502.16.
[18] 42 U.S.C § 4332(2)(C).
[19] *Wilmington Harbor 403: Public Comment*, U.S. ARMY CORPS OF ENG'RS, https://wilmington-harbor-usace-saw.hub.arcgis.com/pages/public (last visited June 25, 2023).
[20] *See* 203 Feasibility Report, *supra* note 8, at 7.

As the Corps has recognized in the current early scoping process, an independent and updated economic analysis is necessary and should be done early in the NEPA review. The Corps' 2020 Review Assessment highlighted significant concerns with the economic analysis and assumptions in the Ports Authority's 203 Feasibility Report, which in turn informed the Ports Authority's claimed justification for the project.[21] For example, in reviewing the initial 203 Feasibility Report and the revised report, the Corps repeatedly questioned the Ports Authority's economic assumptions. In response to the Port's Authority's claims that two shipping services would no longer call at Wilmington if not deepened, the Corps observed that "there is no discussion if Wilmington could be added to another service or if it would just see reduced traffic," and noted that "this assumption would need to be supported with data that this would not occur."[22] The Corps also raised questions about the Ports Authority's assumptions about landside traffic trends with and without the proposed expansion, again noting the "assumptions would need to be justified in a post authorization economic analysis."[23]

In addition to being problematic when completed, the 203 Feasibility Report's analyses are now undeniably outdated; circumstances have changed greatly in the three years since the Ports Authority's February 2020 203 Feasibility Report, demonstrating that the purported need might not exist at all. For example, in April 2020, the Ports Authority completed the turning basin expansion project, which allows Wilmington Harbor to "accommodate ultra-large container vessels…with a length of 1,200 feet"[24]—the exact size of ship the Ports Authority aims to accommodate with the proposed expansion.[25] Following the turning basin updates, in May 2020, Wilmington welcomed its first 14,000 TEU carrying capacity containership.[26] Later that year, the Ports Authority proclaimed itself a "big ship ready port . . . . capable of working the largest container vessels calling on the East Coast" when an even larger ship, with a carrying capacity of 14,220 TEUs, visited Wilmington.[27] In fact, these large Post-Panamax vessels have been regularly calling at Wilmington Harbor over the past three years, raising questions about whether an expansion is needed at all. Meanwhile, Wilmington was recently named the most productive port in America—measured by "how quickly the containers on trucks, trains, and ships get in and out"[28]—which conflicts directly with the claims of transportation inefficiencies alluded to in the offered purpose and need for the project. Similarly, a recent report to the Ports Authority's Board of Directors noted the Authority "will exceed full year key operating financial goals."[29] The Corps must meaningfully evaluate whether the proposed expansion is actually necessary, particularly in light of current circumstances.

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[21] *See, e.g.*, 2020 Review Assessment, *supra* note 9, at 4–5 (summarizing economic concerns).
[22] *Id.* at 25–26, 42, 45–46.
[23] *Id.* at 46–48, 50.
[24] *North Carolina Ports Completes Turning Basin Expansion Project*, N.C. PORTS (Apr. 7, 2020), Attachment 2.
[25] 203 Feasibility Report, *supra* note 8, at ES-3, 117 ("The design vessel for this project has a length overall of 1,200 feet.").
[26] *North Carolina Ports Welcomes Largest Container Ship to the Port of Wilmington*, N.C. PORTS (May 21, 2020), Attachment 3.
[27] *North Carolina Ports Continues to Make History, Welcomes Largest Container Ship*, N.C. PORTS (Oct. 27, 2020), Attachment 4.
[28] Mara McJilton, *Port of Wilmington Tops the List for Most Productive Port in North America*, WECT NEWS (May 24, 2023), Attachment 5.
[29] N.C. Ports, Board of Directors Meeting (June 22, 2023), at slide 42, Attachment 6.

As the Corps evaluates the need for the proposed expansion, it must also engage in a thoughtful review of alternatives, specifically including non-deepening alternatives. The Corps has previously raised concerns about the screening criteria the Ports Authority used in the 203 Feasibility Report to identify possible measures to address the project's purposes.[30] The fact that these concerns were unresolved by the Ports Authority's updated 203 Feasibility Report underscores the need for the Corps to conduct its own analysis of alternatives and not simply adopt the report's inadequate screening of alternatives. In undertaking this independent analysis, the Corps should transparently and honestly consider non-deepening alternatives including but not limited to the no-action alternative. Limiting the analysis to varying depths of deepening wrongly presumes that deepening is the only way to achieve the project's purpose.

III. The Environmental Impacts from the Proposed Expansion are Even More Severe than in 2019.

Several of the Corps' concerns in its 2020 Review Assessment relate to environmental impacts of the proposed Harbor expansion, including the need to comply with NEPA. When the first NEPA process was initiated in 2019, we raised significant concerns with the potential environmental impacts of the project, including increased erosion, flooding, and saltwater intrusion, as well as threats to wildlife, water and air quality, and environmental justice communities.[31] Below, we highlight some of the ongoing environmental concerns and explain how many have become more severe with the passage of time since the 2019 scoping process.

Sea Level Rise and Flooding

As we raised in our 2019 scoping comments, the Corps must assess how rising sea levels and flooding risks affect the feasibility of the proposed expansion and its environmental consequences.[32] The Corps recognized this need in its 2020 Review Assessment, noting that rising sea levels will put additional stress on the North Carolina coastline, including in the project area.[33] Based on now outdated data, the Corps concluded at that time that "this project will exacerbate the situation" already posed by rising sea levels.[34]

Since then, in 2022, the National Oceanic and Atmospheric Administration ("NOAA") updated its national and regional sea level rise projections, and that update (which builds upon the agency's 2017 projections) reflects the most recent and comprehensive sea level rise

[30] 2020 Review Assessment, *supra* note 9, at 8–20.
[31] *See* SELC, 2019 Scoping Comments, *supra* note 2, at 3–13; *see also* Letter from Kerri Allen & Ana Zivanovic-Nanadovic, N.C. Coastal Fed'n, to Elden Gatwood, U.S. Army Corps of Eng'rs (Oct. 11, 2019), *on file with the Corps*; Letter from Carl Parker and Charles Warren, NAACP, to Colonel Robert Clark, U.S. Army Corps of Eng'rs (Oct. 12, 2019), *on file with the Corps*.
[32] *Id*. at 6, 8.
[33] *See* 2020 Review Assessment, *supra* note 9, at 58 (discussing sea level rise impact on mitigation), 61 (explaining that the project will exacerbate the impacts of rising sea levels).
[34] *Id.* at 61.

projections to date.[35] NOAA's sea level rise data provide five scenarios: low, intermediate-low, intermediate, intermediate-high, and high. Relevant to the Corps' analysis here, between 2017 and 2022, the low projections got higher, and the high projection shifted closer to the intermediate-high levels. This narrowing reflects more confidence in the 2022 data and suggests that the sea level rise across the Southeast will likely follow the intermediate-high projections.

By 2050, NOAA's 2022 analyses predict that sea levels in Wilmington will rise between 11 and 18 inches.[36] By the end of the century, those levels are expected to skyrocket to between 18 inches and 6.5 feet.[37] With these higher sea levels, NOAA anticipates "a profound shift" in coastal flooding over the next three decades—with "damaging" flooding expected to occur "more than 10 times as often as it does today."[38] High tide flooding (or flooding that occurs unrelated to a storm) is also expected to increase in Wilmington resulting in 40 to 65 high tide flood days *per year* by 2050.[39] Recent research published since our 2019 comments shows that the Cape Fear River already has a tendency already to experience significant compound flooding from storm surge and rainfall during tropical storms, a trend that will only get worse with sea level rise.[40] Deepening projects in other Southeast harbors have resulted in marked increases in inland flooding.[41]

The Corps has indicated that it intends to use the three relative sea level rise scenario curves—low, intermediate, and high—that the agency produced for major tide gauges along the U.S. coast in 2013 ("Corps' 2013 curves"). The Corps' 2013 curves were novel at their release because they were some of the first to assess localized sea level rise along the entire U.S. coast. However, these curves are based on projections originally created by the National Research Council in 1987,[42] and more up-to-date sea level rise scenarios are now available. Multiple major

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[35] Nat'l Oceanic & Atmospheric Admin., Global and Regional Sea Level Rise Scenarios For the United States (Feb. 2022), *available at* https://aambpublicoceanservice.blob.core.windows.net/oceanserviceprod/hazards/sealevelrise/noaa-nos-techrpt01-global-regional-SLR-scenarios-US.pdf [hereinafter "NOAA, 2022 Global & Regional SLR Scenarios"], Attachment 7.

[36] *2022 Sea Level Rise Technical Report Data Files*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-data.html (last visited June 28, 2023), Wilmington, NC specific data provided as Attachment 8.

[37] *Id.*

[38] *2022 Sea Level Rise Technical Report*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html#step2 (last visited June 28, 2023); *see also* NOAA, 2022 Global & Regional SLR Scenarios, *supra* note 35, at 60.

[39] *The State of High Tide Flooding and 2022 Outlook,* NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://tidesandcurrents.noaa.gov/HighTideFlooding_AnnualOutlook.html (last visited June 15, 2023).

[40] Avantika Gori, *Assessing Compound Flooding From Landfalling Tropical Cyclones on the North Carolina Coast*, WATER RES. RSCH. (Mar. 12, 2020), Attachment 9.

[41] Maqsood Mansur et al., *Estuarine response to storm surge and sea-level rise associated with channel deepening: a flood vulnerability assessment of southwest Louisiana, USA*, NATURAL HAZARDS (Feb. 19, 2023), Attachment 10.

[42] U.S. Army Corps of Engineers, "Incorporating Sea Level Change in Civil Works Programs," Appendix B at 14 (June 2019), https://www.publications.usace.army.mil/Portals/76/Users/182/86/2486/ER_1100-2-8162.pdf?ver=2019-07-02-124841-933 [hereinafter "U.S. Army Corps of Eng'rs, Sea Level Rise Guidance"].

federal reports have since superseded and improved upon the Corps' 2013 curves, including the NOAA 2022 study referenced above that the Corps co-authored.[43]

The difference in estimated sea level rise between the Corps' 2013 curves and NOAA's 2022 projections illustrates the importance of using up-to-date science. For example, the "intermediate" Corps' 2013 curve falls short of *even the lowest NOAA scenario* for the Wilmington tidal gauge in 2050.[44] And by 2100, the "intermediate" Corps' 2013 curve predicts 1.77 feet of sea level rise,[45] a drastically lower number than NOAA's projected 4.98 feet under the agency's "intermediate-high" scenario. In short, the Corps' 2013 curves are outdated, and better, more accurate data are available. [46] The Corps must use those updated projections when evaluating the proposed expansion at Wilmington Harbor, including the data from the NOAA 2022 report.[47]

Additionally, the Corps must study the interrelated effects of the proposed expansion and anticipated sea level rise, using the most recent and best data about sea level rise and flooding projections. The Corps must analyze whether or to what degree expanding the Harbor could cause sea levels to rise faster or higher in the project area, and what impacts—including increased flooding, storm surge, shoreline erosion, wetland loss, groundwater elevation shifts, and water quality changes—can be expected as a result. To accomplish this, the Corps must use the expected sea level rise as a baseline assumption when evaluating *all* impacts and alternatives in its NEPA review.

Maintenance Dredging

Deepening and widening the Harbor will require more extensive, and likely more frequent, maintenance dredging.[48] The Corps already removes approximately 850,000 cubic yards of sediment through maintenance dredging in Wilmington each year.[49] Past environmental reviews for the proposed expansion estimated the Corps will need to routinely remove an

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[43] *See* NOAA, 2022 Global & Regional SLR Scenarios, *supra* note 35, at iii.
[44] The NOAA 2022 report projects 0.94 feet of sea level rise by 2050 under the low scenario. The Corps' 2013 intermediate curve projects only 0.69 feet of sea level rise by this time. *Sea-Level Change Curve Calculator*, U.S. ARMY CORPS OF ENG'RS (2022), https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html.
[45] *Id.*
[46] Several of the laws governing the Corps' environmental review require the use of current data. *E.g.* 16 U.S.C. § 1536(a)(2) (requiring the use of the "best scientific and commercial data available" in consultation under the Endangered Species Act); 42 U.S.C. § 4332(2)(D) (when preparing an EIS under NEPA, "[a]gencies shall ensure the professional integrity, including scientific integrity, of the discussion and analysis in an environmental document").
[47] While Corps Guidance ER 1100-2-8162, Incorporating Sea Level Change in Civil Works Programs, directs the Corps to use the Corps' 2013 curves, the Guidance allows for the Corps to incorporate other sea level rise curves into their analysis, in addition to the Corps' 2013 curves, in order to properly evaluate how projects may be affected by sea level rise. *See* U.S. Army Corps of Eng'rs, Sea Level Rise Guidance, *supra* note 42.
[48] 202 Feasibility Report*, supra* note 8, at 311. Maintenance dredging in this context is defined as the repeated and periodic removal of shoaled sediments from navigational channels in order to maintain the channels' authorized depth. *Dredging Operations*, USACE, https://www.sam.usace.army.mil/Missions/Civil-Works/Navigation/Dredging-Operations/ (last visited June 25, 2023).
[49] U.S. Army Corps of Eng'rs, Wilmington Harbor and Morehead city Harbor Maintenance Dredging and Bed Leveling Final Environmental Assessment and Finding of No Significant Impact (Feb. 2021), at 24 [hereinafter "Dredging Windows Final EA"].

additional 122,000 cubic yards of sediment each year to maintain the proposed Harbor depth.[50] As sea levels rise and rates of erosion increase, it is likely that the agency will have to dredge more than this outdated estimate.[51]

As we noted in 2019, maintenance dredging has serious environmental impacts.[52] Most maintenance dredging in Wilmington Harbor is done by hopper dredges[53] which operate like large vacuum cleaners and can suck up fish traversing through the river or growing in nursery areas, as well as threatened and endangered sea turtles resting on the river floor between nesting events.[54] Fish and turtles sucked into the hopper dredge are most often killed and pulverized (sometimes beyond recognition).[55] Even those turtles that are able to survive suffer long term health consequences.[56] Larger and more frequent maintenance dredging events will exacerbate the severe impacts of hopper dredging on these already vulnerable species. Furthermore, increasing the volume of sediment removed from the local ecosystem could have detrimental environmental effects.

We are not only concerned about the amount of hopper dredging that will need to take place in a larger Harbor, but also the *timing* of that hopper dredging. In recognition of the severe impacts of hopper dredging on protected species, the Corps historically restricted hopper dredging to the winter months, when fish and turtles are less vulnerable.[57] Over the past several years, however, the Corps has tried to abandon its decades-old seasonal restriction on hopper dredging at multiple harbors across the Southeast.[58] That effort has been halted in North Carolina

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[50] 203 Feasibility Report, *supra* note 8, at 311.
[51] *See, e.g.*, J.R. Cox, et al., *Effects of Sea-Level Rise on Dredging and Dredged Estuary Morphology*, 127 J. OF GEOPHYSICAL RES. 10 (Oct. 5, 2022), Attachment 11 ("SLR increases dredging volumes in upstream reaches due to the rapid collapse of shoals and river banks along the whole estuary. Channel deepenings are ineffective under SLR conditions due to sediment import induced by increasingly flood-dominant tides.").
[52] *See, e.g.*, SELC, 2019 Scoping Comments, *supra* note 2, at 5, 8, 9, 10.
[53] While a number of methods exist to accomplish maintenance dredging, hopper dredging is most often preferred by the Corps "due to efficiency, safety and economic advantage" over other types of dredging. Dredging Windows Final EA, *supra* note 49, at 5.
[54] Dena Dickerson et al., *Dredging impacts on sea turtles in the southeastern USA: A historical review of protection*, PROCEEDINGS OF THE 17TH WORLD DREDGING CONGRESS (2004), https://perma.cc/MEM3-MHK4; Daphne W. Goldberg et al., *Hopper dredging impacts on sea turtles on the Northern Coast of Rio de Janeiro State, Brazil*, MARINE TURTLE NEWSLETTER (Oct. 2015), https://perma.cc/9K3A-4WNP.
[55] *See* Dickerson, *supra* note 54; Goldberg, *supra* note 54; *see also* Nat'l Marine Fisheries Serv., *Biological Opinion: The Continued Hopper Dredging of Channels and Borrow Areas in the Southeastern United States* (Sept. 25, 1997), https://perma.cc/FG2R-5K34; Nat'l Marine Fisheries Serv., 2020 South Atlantic Regional Biological Opinion (July 30, 2020), at 91 https://media.fisheries.noaa.gov/dam-migration/sarbo_acoustic_revision_6-2020-opinion_final.pdf.
[56] *See, e.g.*, Craig A. Harms et al., *Gas embolism and massive blunt force trauma to sea turtles entrained in hopper dredges in North and South Carolinadic, USA*, DISEASES OF AQUATIC ORGANISMS (Dec. 17, 2020), https://perma.cc/MA9G-5TDN.
[57] Dredging Windows Final EA, *supra* note 49, at 24–25.
[58] *Id.* at FONSI-2, 21.

and Georgia following separate lawsuits, until the Corps completes adequate environmental reviews for the changed practice.[59]

The Corps' must consider the timing and volume of maintenance dredging needs as they relate to the proposed expansion. In the NEPA review, the Corps must thoroughly consider the expected increase in maintenance dredging, as well as any likely impacts (at the local and regional level) to wildlife and water quality. In its review, the Corps must meaningfully assess whether it has the resources to maintain a deeper harbor, including the estimated $1,000,000 per year in maintenance costs,[60] and what species it will be putting at risk in the process.

Increased Erosion and Wetland Loss

Shoreline, marsh, and wetland habitats around the Wilmington Harbor provide innumerable ecosystem services for communities along the River, as well as wildlife habitat for myriad species. Our 2019 comments urged the Corps to take a hard look at how the proposed expansion would contribute to increased shoreline erosion, marsh migration, and wetland loss along the Cape Fear River and on adjacent oceanfront beaches.[61] We also expressed concern about the secondary effects of increased use of erosion control methods like sandbags, bulkheads, and beach nourishment.[62] In the years since the Corps' last scoping period, the pre-existing stressors on these habitats have only gotten worse. Coastal development continues to degrade wetlands and drive erosion along the shoreline of the River and on surrounding oceanfront beaches, exacerbated by climate change and sea level rise. In addition, there are increasing concerns about the influence that declining water quality is having on submerged aquatic vegetation and wetlands across the North Carolina coast.[63] Meanwhile, research continues to be published on the adverse effects of port expansions on coastal habitats, such as vessel wakes damaging marsh habitats,[64] and beach nourishment degrading wildlife nesting habitat.[65] In fact, over the past several years, we have seen that vessel wakes associated with Post-Panamax container ships already calling to Wilmington Harbor are larger and more damaging than those created by smaller ships. The Corps must consider such impacts and how they will threaten these already vulnerable habitats.

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[59] *Cape Fear River Watch, et al., v. U.S. Army Corps of Eng'rs*, No. 7:21-CV-138-FL 2022 WL 4468268 (Sept. 26, 2022); Memorandum from Col. Benjamin Bennet, U.S. Army Corps of Eng'rs re Operation and Maintenance (O&M) Hopper Dredging: Wilmington Harbor and Morehead City Harbor (Sept. 29, 2022), https://perma.cc/6PT7-MCTP; Memorandum from Col. Joseph R. Geary, U.S. Army Corps of Eng'rs re Operation and Maintenance (O&M) Hopper Dredging: Brunswick Harbor (Mar. 13, 2023), https://perma.cc/HZ8E-4798.

[60] 203 Feasibility Report, *supra* note 8, at 310.

[61] SELC, 2019 Scoping Comments, *supra* note 2, at 5–6.

[62] *Id.*

[63] N.C. Dep't of Env't Quality, North Carolina Coastal Habitat Protection Plan: 2021 Amendment (2021), at iii, https://www.deq.nc.gov/about/divisions/marine-fisheries/habitat-information/coastal-habitat-protection-plan.

[64] *See*, *e.g.*, Hoda El Safety & Reza Marsooli, *Ship wakes and their potential impacts on salt marshes in Jamaica Bay, New York*, J. MARINE SCI. & ENG'G (May 3, 2020), https://www.mdpi.com/2077-1312/8/5/325.

[65] *See*, *e.g.*, Kaitlynn M. Shamblott et al., *The thermal impacts of beach nourishment across a regionally important loggerhead sea turtle (Caretta caretta) rookery*, ECOSPHERE (March 8, 2021), https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/ecs2.3396.

Species of Concern

As we have highlighted in the past, there are significant potential impacts from the proposed expansion on protected species and wildlife in and around the Harbor, including increased shipping traffic and associated vessel strike risk, increased shoreline hardening and erosion of nesting and foraging habitats, and light pollution, among other impacts. Our 2019 comments identified numerous species of concern that require serious consideration by the Corps under NEPA and appropriate consultation under the Endangered Species Act.[66] These include, among others, North Atlantic right whales, sea turtles (loggerhead, green, and Kemp's ridley), piping plovers, red knots, sturgeon (Atlantic and shortnose), and manatees.[67] We also call attention to the numerous species of birds covered under the Migratory Bird Treaty Act that use the islands along the River as important nesting and stopover habitats on their migrations. Updates to all species statuses and conservation designations will be crucial to consider in the Corps' NEPA process.

In the years since 2019, several species have experienced worsening population declines, making the potential impacts of the proposed expansion even more concerning. For example, the North Atlantic right whale population—which we previously highlighted is at risk from ship strikes from increased shipping traffic and larger ships associated with the proposed expansion—has edged ever closer to extinction in the past four years and now stands at merely 340 individuals including fewer than 70 reproductive females.[68] In that time, the population lost at least seven right whales to vessel strikes alone, an unsustainable rate of loss for such a small population. The Corps must thoroughly examine to what extent the proposed expansion will exacerbate these existing impacts given the population's continued decline.

The Corps must also consider newly proposed critical habitat near the project area for the threatened red knot,[69] as well as recent population declines for this species. The 2023 aerial survey of red knots in Delaware Bay found 22,000 individuals, a market increase from a record-breaking low in 2021, but the population remains well below historic norms of 90,000 birds.[70] In addition, in October 2020, the U.S. Fish and Wildlife Service finalized listing the eastern black rail as threatened.[71] Populations in North and South Carolina are extremely perilous due to declining population numbers and limited occurrence, so any take from the proposed expansion could have population-level impacts. The Corps must also consider the newly proposed endangered status with critical habitat for the magnificent ramshorn snail, which is endemic to the area immediately around Wilmington Harbor.[72] Further, the Corps should consider impacts to

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[66] SELC, 2019 Scoping Comments, *supra* note 2, at 8–9.
[67] *Id.*
[68] North Atlantic Right Whale Consortium, 2022 Annual Report Card (2022), at 4–5, https://perma.cc/2N7V-SZ94.
[69] Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Rufa Red Knot, 88 Fed. Reg. 22530 (Apr. 13, 2023).
[70] Jon Hurdle, *Uptick Seen in Red Knots on Jersey Shore*, N.Y. TIMES (June 15, 2023), https://www.nytimes.com/2023/06/15/science/red-knots-jersey-shorebird-threatened.html.
[71] Endangered and Threatened Wildlife and Plants; Threatened Species Status for Eastern Black Rail With a Section 4(d) Rule, 85 Fed. Reg. 63764 (Oct. 10, 2020).
[72] Endangered and Threatened Wildlife and Plants; Endangered Species Status for Magnificent Ramshorn and Designation of Critical Habitat, 87 Fed. Reg. 50804 (Aug. 18, 2022).

the rare skipper (*Problema bulenta*) butterfly, which was spotted on Eagles Island in 2021.[73] The rare skipper is considered critically imperiled in North Carolina, and in 2011, the U.S. Fish and Wildlife Service provided an initial positive finding on a petition to list the species.[74] Finally, given the worsening impacts from climate change that threaten all species of concern in this area, the Corps should take extra care to analyze cumulative impacts from the proposed expansion.

Saltwater Intrusion

Our 2019 comments discussed the many ways in which harbor deepening projects can cause saltwater to intrude upstream, significantly altering an estuary's delicate interface of saltwater and freshwater.[75] This can result in a number of problems for both the human and the natural environment, including contamination of surface and groundwater supplies and loss of salt-intolerant vegetation and associated ecosystem services. In addition to that information, the Corps must consider research published in 2020 showing that hundreds of acres along the Lower Cape Fear River have already transitioned from forested wetlands to emergent wetlands due to rising water levels, resulting in part from past Harbor deepenings.[76] The Corps must take a hard look at how the proposed expansion will exacerbate existing threats to drinking water resources and vegetated wetlands which are so valuable to coastal communities.

Induced Industrial Growth

We have previously noted the importance of a thorough assessment on community impacts caused by the expansion, including impacts to communities of color.[77] Over the nearly four years since, two other harbor expansion projects across the Southeast have been completed, providing a glimpse of what land use changes can happen surrounding the port—including attracting new industrial development with consequent environmental impacts. For instance, in only four years, following different stages of the Savannah Harbor expansion, approximately 70 new warehouses were built in Georgia in the area surrounding Savannah Harbor.[78] As a result, the Georgia side of Savannah Harbor is now primarily industrial space. The South Carolina side of the Harbor is witnessing similar industrial development, including large mixed-use developments like the proposed RiverPort Development,[79] which was proposed to "handle some

[73] Morgan Greene, *Construction Threatens Critically Imperiled Butterfly in Eagles Island Wetlands*, Cape Fear's Going Green (Spring 2022), https://issuu.com/capefearsgoinggreen/docs/spring2022_vol.14-1/1.
[74] Endangered and Threatened Wildlife and Plants; Partial 90-Day Finding on a Petition To List 404 Species in the Southeastern United States as Endangered or Threatened With Critical Habitat, 76 Fed. Reg. 59835 (2011).
[75] SELC, 2019 Scoping Comments, *supra* note 2, at 7.
[76] Jessica Lynn Magolan & Joanne Nancie Halls, *A multi-decadal investigation of tidal creek wetland changes, water level rise, and ghost forests*, REMOTE SENSING (Apr. 3, 2020), Attachment 12.
[77] SELC, 2019 Scoping Comments, *supra* note 2, at 11–12.
[78] S. Env't L. Ctr., Warehouse Development Near the Port of Savannah (Jan. 20, 2023), https://perma.cc/LU6P-SC5Z.
[79] *See, e.g.*, Anthony Garzilli, *Industrial Park Being Developed in Hardeeville*, SAVANNAH MORNING NEWS (Mar. 27, 2019), https://www.savannahnow.com/story/business/2019/03/27/industrial-park-set-for-riverport/5602181007/.

of the increased container traffic into the Savannah port resulting from the introduction of the significantly larger post-Panamax Canal ships."[80]

Induced growth leads to serious environmental concerns, like the destruction of wetlands, displacement of wildlife, and increased air and noise pollution. The industrial development also creates more hard concrete surfaces in coastal areas, exacerbating the effects of flooding, storm surge, and sea level rise. Unfortunately, port expansions and associated induced growth can also displace communities, particularly communities of color and low-wealth communities. In Texas, for example, in an effort to accommodate large Panamax container ships, Port Freeport started buying and taking homes in predominantly black neighborhoods through eminent domain.[81] As the Corps moves forward with its environmental review for the proposed expansion, it must evaluate any possible induced growth. The agency must assess where the growth is likely to occur, what environmental resources would be destroyed in the process, what communities could be displaced, and who is likely to be impacted from increased air and noise pollution, as well as possible increased flooding.

Forever Chemicals or PFAS

Since the Corps' original scoping notice, it has become increasingly clear that the Lower Cape Fear River is extremely contaminated with toxic per- and polyfluoroalkyl substances ("PFAS"), sometimes called "forever chemicals."[82] PFAS are a group of nearly 12,000 man-made chemicals manufactured and used broadly by industry since the 1940s.[83] The chemicals do not break down once released into the environment[84] and can bioaccumulate in sediment as well as the people and wildlife exposed.[85] PFAS are toxic to humans at incredibly low levels[86] and

[80] U.S. Army Corps' of Eng'rs, Public Notice: Notice of Intent to Prepare a Draft Environmental Impact Statement (DEIS) for the RiverPort Development and Proposed New Interchange on I-95 in Jasper County, South Carolina and Notice of Scoping Meeting, SAC-2010-00064 (July 31, 2014), https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/July14_PN/SAC-2010-00064_Jasper_RiverPort.pdf?ver=N1mfjl2BygpKKKRvmu2hlQ%3d%3d.

[81] Delger Erdenesanaa, *Goodbye to a Neighborhood*, TEXAS OBSERVER (Apr. 26, 2023), https://www.texasobserver.org/port-freeport-industrial-takeover-black-community/.

[82] *See, e.g.*, Greg Barnes, *New DEQ Data show 'staggering' levels of PFAS in Cape Fear River Basin*, N.C. HEALTH NEWS (Feb. 3, 2020), https://www.northcarolinahealthnews.org/2020/02/03/new-deq-data-show-high-levels-of-pfas-in-cape-fear-river-basin/.

[83] *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas (last visited Jan. 24, 2023).

[84] *See Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*, NAT'L INST. OF ENV'T HEALTH SCI., https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm#:~:text=PFAS%20molecules%20have%20a%20chain,degrade%20easily%20in%20the%20environment (last visited June 28, 2023); Carol F. Kwiatkowski, et al., *Scientific Basis for Managing PFAS as a Chemical Class*, ENV'T SCI. & TECH. LETTERS 8–9 (2020).

[85] Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 ENV'T HEALTH PERSP. 5, A 107 (May 2015); U.S. Env't Prot. Agency, Drinking Water Health Advisories for PFAS: Fact Sheet for Communities, at 1–2 (June 2022), *available at* https://perma.cc/T7FQ-EKD6.

[86] *See* U.S. Env't Prot. Agency, Drinking Water Health Advisories for PFAS Fact Sheet for Communities (June 2022), https://www.epa.gov/system/files/documents/2022-06/drinking-water-ha-pfas-factsheet-communities.pdf.

have been documented to have harmful impacts on wildlife as well.[87]

The Cape Fear River is nationally recognized as one of the most PFAS contaminated river systems.[88] Sediment in the Cape Fear River, including estuarine sediment, contains high levels of certain PFAS, like GenX[89] which can cause liver toxicity and can detrimentally impact reproductive and fetal development processes in both humans and animals.[90] In addition to sediment, PFAS have been documented in fish,[91] birds,[92] alligators,[93] and sea foam[94] present in the Lower Cape Fear River.

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[87] Huang et al., *Toxicity, Uptake Kinetics and Behavior Assessment in Zebrafish Embryos Following Exposure to Perfluorooctanesulphonicacid (PFOS)*, 98 AQUATIC TOXICOLOGY 139–47 (2010); Jantzen et al., *PFOS, PFNA, and PFOA Sub-Lethal Exposure to Embryonic Zebrafish Have Different Toxicity Profiles in terms of Morphometrics, Behavior and Gene Expression*, 175 AQUATIC TOXICOLOGY 160–70 (2016); Liu et al., *The Thyroid-Disrupting Effects of Long-Term Perfluorononanoate Exposure on Zebrafish (Danio rerio)*, 20 ECOTOXICOLOGY 47–55 (2011); Chen et al., *Multigenerational Disruption of the Thyroid Endocrine System in Marine Medaka after a Life-Cycle Exposure to Perfluorobutanesulfonate*, 52 ENV'T SCI. & TECH. 4432–39 (2018); Rotondo et al., *Environmental Doses of Perfluorooctanoic Acid Change the Expression of Genes in Target Tissues of Common Carp*, 37 ENV'T TOXICOLOGY & CHEM. 942–48 (2018); Lou et al., *Effects of Perfluorooctanesulfonate and Perfluorobutanesulfonate on the Growth and Sexual Development of Xenopus Laevis*, 22 ECOTOXICOLOGY 1133–44 (2013); Guillette et al., *Blood Concentrations of Per- and Polyfluoroalkyl Substances Are Associated with Autoimmune-like Effects in American Alligators From Wilmington, North Carolina*, FRONTIER TOXICOLOGY 4:1010185 (Oct. 20, 2022); Liu et al., *Immunotoxicity in Green Mussels under Perfluoroalkyl Substance (PFAS) Exposure: Reversible Response and Response Model Development*, 37 ENV'T TOXICOLOGY & CHEM. 1138–45 (2018); Liang et al., *Effects of Perfluorooctane Sulfonate on Immobilization, Heartbeat, Reproductive and Biochemical Performance of Daphnia Magna*, 168 CHEMOSPHERE 1613–18 (2017).

[88] Xindi C. Hu, et al., *Detection of Poly- and Perflouoroalkyl Substances (PFASs) in U.S. Drinking Water Linked to Industrial Sites, Military Fire Training Areas, and Wastewater Treatment Plants*, ENV'T. SCI. TECH. LETT., 346 (2016).

[89] Jennifer L. Harfmann, et al., *Soption of Hexafluoropropylene Oxide Dimer Acid to Sediments: Biogeochemical Implications and Analytical Considerations*, ACS EARTH SPACE CHEM. (Mar, 1, 2021), .

[90] U.S. Env't Prot. Agency, Drinking Water Health Advisory: Hexafluoropropylene Oxide (HFPO) Dimer Acid (CASRN 13252-13-6) and HFPO Dimer Acid Ammonium Salt (CASRN 62037-80-3), Also Known as "GenX Chemicals" (June 2022), at vii, https://perma.cc/9F6H-5BBY (explaining that exposure to GenX increases harms to liver, reproductive, and developmental functions).

[91] T.C. Guillette, et al., Elevated levels of per- and polyfluoroalkyl substances in Cape Fear River Striped Bass (Morone saxatilis) are associated with biomarkers of altered immune and liver function, 136 ENV'T INT'L 105358 (Mar. 2020), https://www.sciencedirect.com/science/article/pii/S0160412019334762#:~:text=Detectable%20levels%20of%20multiple%20PFAS,facility%20that%20used%20well%20wate; Tracey Peake, *High Levels of PFAS Affect Immune, Liver Functions in Cape Fear River Striped Bass*, N.C. STATE (Feb. 7, 2020), https://news.ncsu.edu/2020/02/pfas-striped-river-bass/.

[92] Anna R. Robuck, et al., *Legacy and Novel Per- and Polyfluoroalkyl Substances in Juvenile Seabirds from the U.S. Atlantic Coast*, 54 ENV'T SCI. & TECH. 12938 (Sept. 2020), https://pubs.acs.org/doi/pdf/10.1021/acs.est.0c01951; Univ. of RI, *PFAS in Seabirds: Narragansett Bay, Masschusetts Bay, Cape Fear*, SCIENCE DAILY (Sept. 23, 2020), https://www.sciencedaily.com/releases/2020/09/200923164617.htm.

[93] Guillette et al., *Blood Concentrations of Per- and Polyfluoroalkyl Substances Are Associated with Autoimmune-like Effects in American Alligators From Wilmington, North Carolina*, FRONTIER TOXICOLOGY 4:1010185 (Oct. 20, 2022), https://www.frontiersin.org/articles/10.3389/ftox.2022.1010185/full.

[94] Trista Talton, *Still No Answers From Sampling of PFAS-Laden Foam*, COASTAL REVIEW (Mar. 4, 2022), https://coastalreview.org/2022/03/still-no-answers-from-sampling-of-pfas-laden-foam/.

As the Corps moves forward with its environmental review, it should evaluate to what extent the initial construction, routine maintenance dredging, and disposal of PFAS-laden sediment—among other things—will stir up and spread PFAS contamination through the water and to exposed wildlife and humans.[95] In addition, the Corps must analyze any drinking water impacts associated with potentially penetrating the Castle Hayne aquifer and injecting PFAS laden water into the groundwater system. The Corps must also consider the legal implications of collecting and disposing of PFAS laden sediment under different statutes such as the Clean Water Act, the Rivers and Harbors Act, and the Endangered Species Act.

Cumulative Impacts

As we noted in our 2019 scoping comments, the constant deepening of harbors across the South Atlantic takes a regional toll on coastal resources.[96] Against the backdrop of recently completed harbor deepenings, expanding Wilmington Harbor will have cumulative impacts to sensitive coastal resources, including the imperiled wildlife mentioned above. Throughout these comments we have noted how the proposed expansion could exacerbate pre-existing conditions, particularly sea level rise. The Corps must consider all of the above impacts together, including their cumulative effects, in thoroughly assessing and disclosing the full scope of impacts from the proposal.

IV. Conclusion.

As the Corps explains on its project website, "[f]or an improvement project to be feasible, the benefits must exceed the costs."[97] Here, there is a hefty monetary price tag for construction—nearly $900 million according to 2019 cost estimates—plus enormous environmental and community costs at stake from the direct and indirect impacts of the proposed expansion. The Corps must consider the environmental and community consequences in its costs-benefits analysis of expanding the Harbor, as well as the no-action alternative.

Now is the time for the Corps to carefully consider the purpose of and alternatives to this project, particularly in light of recent changes at Wilmington Harbor. In addition to transparently evaluating all impacts of the project, the Corps must also take stock of the latest sea level rise data and flooding trends before moving forward with a project that could ultimately worsen the impacts of rising water levels.

We appreciate the opportunity to provide comments regarding the proper scope for the Corps' upcoming NEPA analysis and 403 Letter Report. We look forward to remaining engaged with the Corps and other agencies throughout the environmental review process.

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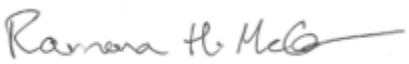
[95] Jitka Becanova, et al., Annual dynamics of perfluorinated compounds in sediment: A case study in the Morava River in Zlín district, Czech Republic, 151 CHEMOSPHERE 225-233 (May 2016), https://www.sciencedirect.com/science/article/abs/pii/S0045653516302417.

[96] SELC, 2019 Scoping Comments, *supra* note 2, at 13–14.

[97] *Frequently Asked Questions*, U.S. Army Corps of Eng'rs, https://wilmington-harbor-usace-saw.hub.arcgis.com/pages/faqs (last visited June 28, 2023).

Sincerely,



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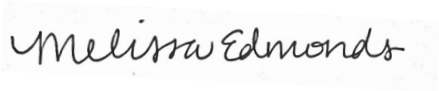

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[Attachments]